



ProTrace API capture interface description

Makro Cash & Carry ČR s.r.o.
 METRO Cash&Carry SR s.r.o.
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1. Introduction

ProTrace allows to use the “capture interface” which enables to use a webservice to post traceability data as EPCIS Events in XML format directly into the system.

This is enabling companies to share transparency information on batch level via full automated way. The solution is based on GS1 standards.

This document provides all necessary information to create and transfer ProTrace compliant XML messages to the ProTrace system.

Since all services are GS1 compliant, this documentation will link to several GS1 standards.

If you are not familiar with these standards, you find the respective documentation for download on the following pages:

Standard	Description	Link
EPCIS Version 1.2(Electronic Product Code Information Services)	EPCIS is the decisive standard ProTrace is based on. The goal of EPCIS is to enable disparate applications to leverage Electronic Product Code (EPC) data via EPC-related data sharing, both within and across enterprises. Ultimately, this sharing is aimed at enabling participants in the EPCglobal Network to gain a shared view of the disposition of EPC bearing objects within a relevant business context.	EPCIS Standard
CBV Version 1.2.2 (Core Business Vocabulary)	The goal of this standard is to specify various vocabulary elements and their values for use in conjunction with the EPCIS standard [EPCIS1.2], which defines mechanisms to exchange information both within and across organization boundaries. The vocabulary identifiers and definitions in this standard will ensure that all parties who exchange EPCIS data using the Core Business Vocabulary will have a common understanding of the semantic meaning of that data.	CBV Standard
TDS Version 1.12 (Tag Data Standard)	The EPC Tag Data Standard defines the specification of the Electronic Product Code, including its representation at various levels of the EPCglobal Architecture and its correspondence to GS1 keys and other existing codes.	TDS Standard

2. Capture-Interface – Application Description

2.1. Prerequisites

- **Activating the web service:**

For the activation of this web service, please contact the ProTrace support on pier@sourcingsupport.de. The service needs to be granted explicitly to your organization.

- **User assignment:**

For data protection reasons, the web service is limited to information of your own organization, or to products for which you got an explicit allowance.

2.2 Access to the Web Service

- **Interface endpoints:**

- TEST: <https://dataentry.protrace-pp.metrosystems.net/capture>
- PROD: <https://dataentry.protrace.metrosystems.net/capture>
- The interface expects authentication via BasicAuth and XML as the body.

- **Authentication:**

- Webservice is using BasicAuth authentication
- Connection has to be established by valid username/password combination
- Login credentials are issued by PRO TRACE technical support based on a request from your organization (see point 2.1).

3. Web Service Specification

3.1 Transport layer

The EPCIS XML document is transmitted to the server using an HTTP POST request.

```
curl --request POST \  
--url http://localhost:8080/capture \  
--header 'authorization: <ADD_YOUR_BASIC_AUTH_HERE>' \  
--header 'content-type: application/xml' \  

```

3.2 XML document structure:

As mentioned in the Introduction of this document the GS1 EPCIS stanard is used for data capature.

Related "XML document Meta data" is inserted into the EPCISDocument segment
Required "Trace data" is inserted into the EventObject segment of the EPCISBody

• Basic XML document structure

```
<epcis:EPCISDocument ---XML document Meta data--->
  <EPCISBody>
    <EventList>
      <ObjectEvent>
        --- Trace data ----
      </ObjectEvent>
    </EventList>
  </EPCISBody>
</epcis:EPCISDocument>
```

3.2.1 EPCISDocument Meta data

This part of XML document is static and contains allways following content:

Except the "creationDate" attribute where the actual timestamp of the XML document creation will be inserted as its value

```
<epcis:EPCISDocument
schemaVersion="1.2"
creationDate="2024-01-17T14:41:49.883098Z"
xmlns:epcis.gs1.fr="http://epcis.gs1.fr/1"
xmlns:epcis="urn:epcglobal:epcis:xsd:1"
xmlns:fT_fruit="http://ns.fruit.fttrace.com"
xmlns:fT_fish="http://ns.fish.fttrace.com"
xmlns:pt="http://ns.pier.protrace.metronom.com/epcis"
xmlns:pt_fish="http://ns.fish.pier.protrace.metronom.com/epcis"
xmlns:pt_meatcut="http://ns.meatcut.protrace.metronom.com/epcis"
xmlns:epcisq="urn:epcglobal:epcis-query:xsd:1"
xmlns:fT="http://ns.fttrace.com/epcis"
xmlns:eccc="http://ns.eccc.info/epcis">
```

3.2.2 ObjectEvent Trace data

This part of XML document is dynamic and contains core Event data.

Its structure varies based on the production methods (fishery/aquaculture) as well as on some specific production/event details.

Segment's XPath: /epcis:EPCISDocument/EPCISBody/EventList/ObjectEvent/
ObjectEvent contains core Trace Data and consists of three logical data groups:

- ObjectEvent elements:
 - contains Event metadata: what happened, when, and where.
- subsegment.../extension/quantityList:
 - contains Quantity data: which lot and in what quantity.
- subsegment.../extension/ilmd:
 - Contains ILMD data: detailed product origin and characteristics (fishing/farming information, dates, quality attributes).

```

<ObjectEvent>
  <eventTime>2026-03-15T00:00:00Z</eventTime>
  <eventTimeZoneOffset>+00:00</eventTimeZoneOffset>
  <epcList/>
  <action>ADD</action>
  <bizStep>urn:epcglobal:cbv:bizstep:commissioning</bizStep>
  <readPoint>
    <id>https://id.metro.de/414/4047111000044/254/0</id>
  </readPoint>
  <bizLocation>
    <id>https://id.metro.de/414/4047111000044/254/0</id>
  </bizLocation>
  <extension>
    <quantityList>
      <quantityElement>
        <epcClass>https://id.metro.de/01/9400001100081/10/20260316T202</epcClass>
        <quantity>200</quantity>
        <uom>KGM</uom>
      </quantityElement>
    </quantityList>
    <ilmd>
      <ft:storageStateCode>NOT_PREVIOUSLY_FROZEN</ft:storageStateCode>
      <ft:bestBeforeDate>2026-03-31</ft:bestBeforeDate>
      <ft:useByDate>2026-04-04</ft:useByDate>
      <ft:countryOfOrigin>DE</ft:countryOfOrigin>
      <ft_fish:catchingPeriodEnd>2026-03-16T00:00Z</ft_fish:catchingPeriodEnd>
      <ft:listOfFarms>
        <ft:farm ft:farmIdentType="geoPoint">50.0417,14.3154</ft:farm>
        <ft:farm ft:farmIdentType="REGISTRATION_NO">123-ABC-789</ft:farm>
        <ft:farm ft:farmIdentType="GLN">4047111000044</ft:farm>
      </ft:listOfFarms>
      <pt_fish:inlandFishing>false</pt_fish:inlandFishing>
    </ilmd>
  </extension>
</ObjectEvent>

```

ObjectEvent elements:
contains Event metadata:
what happened, when, and where.

Subsegment.../extension/quantityList:
contains Quantity data:
which lot and in what quantity.

Subsegment.../extension/ilmd:
Contains ILMD data:
detailed product origin and characteristics
(fishing/farming information, dates, quality attributes).

3.2.2.1 Fishery ObjectEvent:

3.2.2.1.1 description fishery:

Element/Attribute	Xpath /epcis:EPCISDocument/ EPCISBody/EventList/O bjectEvent/	Element / Attribute value	Format	Description	Mandatory
eventTime	.../eventTime	2025-04-01T00:00:00Z	datetime (ISO 8601, UTC)	event timestamp of harvesting/catching	mandatory
eventTimeZoneOffset	.../eventTimeZoneOffset	+00:00	text – time zone offset ±HH:MM	event time zone, offset from Greenwich	mandatory
epcList	.../epcList	empty element	empty element (left empty)	remains empty	mandatory
action	.../action	ADD	text	fixed value ADD	mandatory
bizStep	.../bizStep	urn:epcglobal:cbv:bizstep: commissioning	URI (text)	fixed value COMMISSIONING	mandatory
id	.../readPoint/id	https://id.metro.de/414/8436573280013/254/0	URI (text) – GLN + extension	GLN ID of the event place	mandatory
id	.../bizLocation/id	https://id.metro.de/414/8436573280013/254/0	URI (text) – GLN + extension	GLN ID of the event place	mandatory
epcClass	.../extension/quantityList/q uantityElement/epcClass	https://id.metro.de/01/98436573280016/10/TEST2025128	URI (text) – epcClass (GTIN + LOT)	LGTIN (GS1 standard GTIN +LOT)	mandatory
quantity	.../extension/quantityList/q uantityElement/quantity	25	number (integer)	quantity	mandatory
uom	.../extension/quantityList/q uantityElement/uom	KGM	text (KGM or C62 according to UN/ECE Recommendation 20)	unit of quantity	mandatory
ft:storageStateCode	.../extension/ilmd/ft:storag eStateCode	PREVIOUSLY_FROZEN	text (code list), PREVIOUSLY_FROZEN, NOT_PREVIOUSLY_FRO ZEN	was it frozen?	optional

ft:dateOfFirstFreezing	.../extension/ilmd/ft:dateOfFirstFreezing	02.04.2025	date (YYYY-MM-DD)	if frozen, when?	conditional: IF storageStateCode = PREVIOUSLY_FROZEN, THEN mandatory, ELSE irrelevant
ft:bestBeforeDate	.../extension/ilmd/ft:bestBeforeDate	02.07.2025	date (YYYY-MM-DD)	best before date	conditional: bestBeforeDate OR useByDate is mandatory
ft:useByDate	.../extension/ilmd/ft:useByDate	01.07.2025	date (YYYY-MM-DD)	use by date	conditional: bestBeforeDate OR useByDate is mandatory
ft_fish:catchingPeriodEnd	.../extension/ilmd/ft_fish:catchingPeriodEnd	2025-04-02T00:00Z	datetime (ISO 8601, UTC)	end of the catching period	optional
ft_fish:unloadingPort	.../extension/ilmd/ft_fish:unloadingPort	DE BRV	text – port code according to UN/LOCODE	unloading port	mandatory
ft:catchMethod	.../extension/ilmd/ft_fish:vesselCatchInformation/ft:catchMethod	TX	text – fishing gear/method according to FAO ISSCFG 2016	cath method	mandatory
ft:catchArea	.../extension/ilmd/ft_fish:vesselCatchInformation/ft:catchArea	05.1	text – area and sub-area according to FAO Fishing Areas	cath area	mandatory
ft_fish:vesselID	.../extension/ilmd/ft_fish:vesselCatchInformation/ft_fish:vesselID	VesselID	text	vessel ID	Conditional:FOR nonImported; vessel ID OR imoNumber is mandatory, ELSE optional
ft_fish:vesselName	.../extension/ilmd/ft_fish:vesselCatchInformation/ft_fish:vesselName	VesselName	text	vessel name	optional
ft_fish:vesselOwner	.../extension/ilmd/ft_fish:vesselCatchInformation/ft_fish:vesselOwner	VesselOwner	text	vessel owner	optional
ft_fish:vesselFlagState	.../extension/ilmd/ft_fish:vesselCatchInformation/ft_fish:vesselFlagState	DE	text	vessel flag state	optional
ft_fish:haul	.../extension/ilmd/ft_fish:vesselCatchInformation/ft_fish:haul	Haul	text	cath ID within one fishing trip	optional
ft_fish:imoNumber	.../extension/ilmd/ft_fish:vesselCatchInformation/ft_fish:imoNumber	IMO9648714	text – IMO code (7 digits + IMO prefix)	IMO number	Conditional:FOR nonImported; vessel ID OR imoNumber is mandatory, ELSE optional
ft_fish:fishingTripID	.../extension/ilmd/ft_fish:vesselCatchInformation/ft_fish:fishingTripID	1234567	text (fishing trip ID / trip ID)	trip ID	conditional: FOR nonImported mandatory, ELSE optional
pt_fish:inlandFishing	.../extension/ilmd/pt_fish:inlandFishing	true	boolean (true / false)	inland fishing	mandatory
ft:countryOfOrigin	.../extension/ilmd/ft:countryOfOrigin	DE	text – ISO country code	country of origin	conditional: IF inlandFishing = true, THEN countryOfOrigin is mandatory, ELSE optional

3.2.2.1.2 sample fishery:

```
<epcis:EPCISDocument schemaVersion="1.2"
creationDate="2024-01-17T14:41:49.883098Z"
xmlns:epcis.gs1.fr="http://epcis.gs1.fr/1"
xmlns:epcis="urn:epcglobal:epcis:xsd:1"
xmlns:ft_fruit="http://ns.fruit.fttrace.com"
xmlns:ft_fish="http://ns.fish.fttrace.com"
xmlns:pt="http://ns.pier.protrace.metronom.com/epcis"
xmlns:pt_fish="http://ns.fish.pier.protrace.metronom.com/epcis"
xmlns:pt_meatcut="http://ns.meatcut.protrace.metronom.com/epcis"
xmlns:epcisq="urn:epcglobal:epcis-query:xsd:1"
xmlns:ft="http://ns.fttrace.com/epcis"
xmlns:eccc="http://ns.eccc.info/epcis">
  <EPCISBody>
    <EventList>
      <ObjectEvent>
        <eventTime>2026-03-15T00:00:00Z</eventTime>
        <eventTimeZoneOffset>+00:00</eventTimeZoneOffset>
        <epcList/>
        <action>ADD</action>
        <bizStep>urn:epcglobal:cbv:bizstep:commissioning</bizStep>
        <readPoint>
          <id>https://id.metro.de/414/4047111000013/254/0</id>
        </readPoint>
        <bizLocation>
          <id>https://id.metro.de/414/4047111000013/254/0</id>
        </bizLocation>
        <extension>
          <quantityList>
            <quantityElement>
              <epcClass>https://id.metro.de/01/94000001100043/10/20260316T100</epcClass>
              <quantity>100</quantity>
              <uom>KGM</uom>
            </quantityElement>
          </quantityList>
          <ilmd>
            <ft:storageStateCode>NOT_PREVIOUSLY_FROZEN</ft:storageStateCode>
            <ft:bestBeforeDate>2026-03-31</ft:bestBeforeDate>
            <ft:useByDate>2026-04-04</ft:useByDate>
            <ft_fish:catchingPeriodEnd>2026-03-16T00:00Z</ft_fish:catchingPeriodEnd>
            <ft_fish:unloadingPort>DE BRV</ft_fish:unloadingPort>
            <ft_fish:vesselCatchInformation>
              <ft:catchMethod>LN</ft:catchMethod>
              <ft:catchArea>5.11</ft:catchArea>
              <ft_fish:vesselID>VesselID</ft_fish:vesselID>
              <ft_fish:vesselName>VesselName</ft_fish:vesselName>
              <ft_fish:vesselOwner>VesselOwner</ft_fish:vesselOwner>
              <ft_fish:vesselFlagState>DE</ft_fish:vesselFlagState>
              <ft_fish:haul>HAUL 1234</ft_fish:haul>
              <ft_fish:imoNumber>IMO1234567</ft_fish:imoNumber>
              <ft_fish:fishingTripID>TRIP876</ft_fish:fishingTripID>
            </ft_fish:vesselCatchInformation>
            <pt_fish:inlandFishing>true</pt_fish:inlandFishing>
            <ft:countryOfOrigin>DE</ft:countryOfOrigin>
          </ilmd>
        </extension>
      </ObjectEvent>
    </EventList>
  </EPCISBody>
</epcis:EPCISDocument>
```

3.2.2.2 Aquaculture ObjectEvent

3.2.2.2.1 description aquaculture

Element/Attribute	Xpath /epcis:EPCISDocument/EPCISBody/EventList/ObjectEvent/	Element/Attribute value	Format	Description	Mandatory
eventTime	.../eventTime	2025-04-01T00:00:00Z	datetime (ISO 8601, UTC)	event timestamp of harvesting/catching	mandatory
eventTimeZoneOffset	.../eventTimeZoneOffset	+00:00	text – time zone offset ±HH:MM	event time zone, offset from Greenwich	mandatory
epcList	.../epcList	empty element	empty element (left empty)	remains empty	mandatory
action	.../action	ADD	text – fixed EPCIS value (ADD)	fixed value ADD	mandatory
bizStep	.../bizStep	urn:epcglobal:cbv:bizstep:commissioning	URI (text)	fixed value COMMISSIONING	mandatory
id	.../readPoint/id	https://id.metro.de/414/8436573280013/254/0	URI (text) – GLN + extension	GLN ID of the event place	mandatory
id	.../bizLocation/id	https://id.metro.de/414/8436573280013/254/0	URI (text) – GLN + extension	GLN ID of the event place	mandatory
epcClass	.../extension/quantityList/quantityElement/epcClass	https://id.metro.de/01/98436573280016/10/TEST2025123	URI (text) – epcClass (GTIN + LOT)	LG TIN (GS1 standard GTIN + LOT)	mandatory
quantity	.../extension/quantityList/quantityElement/quantity	25	number (integer)	quantity	mandatory
uom	.../extension/quantityList/quantityElement/uom	KGM	text (KGM or C62 according to UN/ECE Recommendation 20)	unit of quantity	mandatory
ft:storageStateCode	.../extension/iimd/ft:storageStateCode	PREVIOUSLY_FROZEN	text (code list), PREVIOUSLY_FROZEN, NOT_PREVIOUSLY_FROZEN	whether it was frozen	optional
ft:dateOfFirstFreezing	.../extension/iimd/ft:dateOfFirstFreezing	2025-04-01	date (YYYY-MM-DD)	if it was frozen, then the timestamp	conditional: IF storageStateCode = PREVIOUSLY_FROZEN, THEN mandatory, ELSE irrelevant
ft:bestBeforeDate	.../extension/iimd/ft:bestBeforeDate	2025-04-01	date (YYYY-MM-DD)	BBD (Best Before Date)	conditional: bestBeforeDate OR useByDate is mandatory
ft:useByDate	.../extension/iimd/ft:useByDate	2025-04-01	date (YYYY-MM-DD)	expiration date / use-by date	conditional: bestBeforeDate OR useByDate is mandatory

ft:countryOfOrigin	.../extension/ilmd/ft:countryOfOrigin	FR	text – ISO country code	country of origin	mandatory
ft_fish:catchingPeriodEnd	.../extension/ilmd/ft_fish:catchingPeriodEnd	2025-04-02T00:00Z	datetime (ISO 8601, UTC)	end of the catching period	optional
ft:farmlandType="geoPoint">	.../extension/ilmd/ft:listOfFarms	50.0417,14.3154	text, geoPoint format LAT,LON	geolocation of the farm	optional
ft:farmlandType="REGISTRATION_NO">	.../extension/ilmd/ft:listOfFarms	123-ABC-789	text (registration number of the farm)	Registration number of the farm	optional
ft:farmlandType="GLN">	.../extension/ilmd/ft:listOfFarms	4047111000044	text	GLN of the farm	mandatory
pt_fish:inlandFishing	.../extension/ilmd/pt_fish:inlandFishing	true	boolean	inland fishing	mandatory

3.2.2.2.2 sample aquaculture:

```

<epcis:EPCISDocument schemaVersion="1.2"
creationDate="2024-01-17T14:41:49.883098Z"
xmlns:epcis.gs1.fr="http://epcis.gs1.fr/1"
xmlns:epcis="urn:epcglobal:epcis:xsd:1"
xmlns:ft_fruit="http://ns.fruit.fttrace.com"
xmlns:ft_fish="http://ns.fish.fttrace.com"
xmlns:pt="http://ns.pier.protrace.metronom.com/epcis"
xmlns:pt_fish="http://ns.fish.pier.protrace.metronom.com/epcis"
xmlns:pt_meatcut="http://ns.meatcut.protrace.metronom.com/epcis"
xmlns:epcisq="urn:epcglobal:epcis-query:xsd:1"
xmlns:ft="http://ns.fttrace.com/epcis"
xmlns:eccc="http://ns.eecc.info/epcis">
  <EPCISBody>
    <EventList>
      <ObjectEvent>
        <eventTime>2026-03-15T00:00:00Z</eventTime>
        <eventTimeZoneOffset>+00:00</eventTimeZoneOffset>
        <epcList/>
        <action>ADD</action>
        <bizStep>urn:epcglobal:cbv:bizstep:commissioning</bizStep>
        <readPoint>
          <id>https://id.metro.de/414/4047111000044/254/0</id>
        </readPoint>
        <bizLocation>
          <id>https://id.metro.de/414/4047111000044/254/0</id>
        </bizLocation>
        <extension>
          <quantityList>
            <quantityElement>
              <epcClass>https://id.metro.de/01/94000001100081/10/20260316T202</epcClass>
              <quantity>200</quantity>
              <uom>KGM</uom>
            </quantityElement>
          </quantityList>
        </ilmd>
        <ft:storageStateCode>NOT_PREVIOUSLY_FROZEN</ft:storageStateCode>
        <ft:bestBeforeDate>2026-03-31</ft:bestBeforeDate>
        <ft:useByDate>2026-04-04</ft:useByDate>
        <ft:countryOfOrigin>DE</ft:countryOfOrigin>
        <ft_fish:catchingPeriodEnd>2026-03-16T00:00Z</ft_fish:catchingPeriodEnd>
        <ft:listOfFarms>
          <ft:farm ft:farmlandType="geoPoint">50.0417,14.3154</ft:farm>
          <ft:farm ft:farmlandType="REGISTRATION_NO">123-ABC-789</ft:farm>
          <ft:farm ft:farmlandType="GLN">4047111000044</ft:farm>
        </ft:listOfFarms>
        <pt_fish:inlandFishing>false</pt_fish:inlandFishing>
      </ObjectEvent>
    </EventList>
  </EPCISBody>
</epcis:EPCISDocument>

```

3.3 Responses

3.3.1. Successfull response

If the submission was successful an empty response body with HTTP status code 200 is returned.

3.3.2 Unsuccessfull response:

In case of any error, the response body contains an error message. The HTTP status code is 400.

Sample:

error capturing epcis document: mandatory element '<vesselCatchInformation>' not found

